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Research on the construction of university English Education ecosystem in the Environment of big data

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Abstract. In the steady development of social economy, the environment of big data technology has gradually changed the traditional economic development model and created a new way of learning, which makes practical education more in line with the needs of college English education innovation and development in the new era. Based on the accumulated experience of intelligent education research with big data as the core in recent years, this paper proposes the basic concept of intelligent education ecosystem, improves its basic functions and clarifies the overall system application framework, which can provide a personalized teaching system for college English education and better meet students' learning requirements. Based on the current research status of college English education in the big data environment and the theory of big data technology, I deeply discuss the design framework of intelligent education college English ecosystem and propose appropriate educational measures in order to achieve the goal of college English education reform.

Keywords: Big data; College English; English education; Ecosystem; Intelligent education

1. Introduction

With the social construction and development entering the era of big data, the development speed of smart education is getting faster and faster. Some scholars have mastered a large amount of literature and found that the research on smart education is mainly reflected in three aspects: first, it refers to the environment construction of smart schools, second, it refers to the research on smart teaching under the support of intelligent technology, and finally, it refers to the research on personalized learning under the support of organism learning technology. China's research is mainly guided by national policies, which can be divided into four stages. The first stage refers to the Outline of the National Medium - and Long-Term Plan for Education Reform and Development (2010-2020) issued by The State Council in 2010; The second stage refers to the 10-year Development Plan for Education Informatization (2011-2020) issued by the Ministry of Education in 2012; In the third stage, The State Council issued the Guiding Opinions of The State Council on Actively Promoting the "Internet Plus" Initiative in 2015. The fourth stage refers to the Development Plan for the New Generation of Artificial Intelligence issued by The State Council in 2017. Under the guidance of national planning and guidance, the modern education field has strengthened the research on Internet education, educational big data, smart campus, smart education and so on. Especially in the background of cloud computing, big data, artificial intelligence and other technical theories becoming more and more perfect, the market has gradually triggered a new hotspot of intelligent education research. However, the current research mainly focuses on the development of local intelligent education system platform and the application of skills, and there are many problems in practice development. For example, it is difficult to develop the system, there are defects in system compatibility and data sharing, technology cannot be quickly accessed, and function upgrading is slow. Therefore, on the basis of understanding the technology environment of big data, this paper mainly discusses the university with intelligent education as the core and English education ecosystem construction system, so as to solve the existing problems in education.[1-3]

According to the accumulated experience of college English education in recent years, big data technology has mainly exerted the following impacts on education: First, fragmented learning. This way of learning is more suitable for dealing with knowledge explosion in the environment of big

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data, enabling students to have a brand new way of thinking, extract more valuable knowledge fragments from massive information, and finally form a brand new knowledge system according to the original knowledge. Second, diversify learning styles. Smart mobile devices and multimedia technology platforms have given rise to more and more ways of learning college English education. Online learning has created a ubiquitous learning environment at any time and anywhere, which not only enables students to communicate with others through big data and AI technology, but also enables them to quickly infer more accurate word meanings. Third, experiential learning. Simple algorithms with big data are more effective than complex algorithms with small data. At present, computer word processing uses a large corpus to replace the early reasoning algorithm, so as to complete machine translation and grammar check. The experiential learning model with big data environment as the core has gradually changed the thinking of traditional teaching methods and can help college students gain more learning experience in case analysis. Based on the understanding of the environment of big data technology and the accumulated experience of college English education in recent years, this paper focuses on the measures for the construction of education ecosystem with intelligent education as the core.

2. Methods

The construction of college English education ecosystem in the big data environment, data sources, data collection, data storage, data management, data services, etc., can lay the foundation for the construction of a harmonious education ecosystem. In essence, the education ecosystem can be divided into three levels: first, it refers to a single or composite education ecosystem centered on education and based on the external natural environment, social environment and normative environment; Secondly, it is an education system built with a school and a certain level of education as the core, which fully demonstrates the relationship between the education systems. Finally, it refers to the development of human subjects as the main line, the study of the natural environment, social environment, spiritual factors including education, and clarify the physical or psychological internal environmental factors related to the object.[4-6]

2.1 Data Collection

On the one hand, knowledge refinement and optimization. Big data is characterized by large quantity and high value. To apply it to college English education, it is necessary to extract high-quality resources according to relevant courses and distinguish the attributes of high-quality resources. On the other hand, build the wisdom library. The massive data is extracted and classified, and the B/S architecture shown in Figure 1 is finally used to design the learning resource library, which is not only the basic information for teachers and students, but also can provide quality services for the public. It should be noted that the overall system construction is a process of continuous iterative extraction and optimization of data resources. Only with abundant data as the support, can we build an education ecosystem that meets the needs of big data environment.[7]

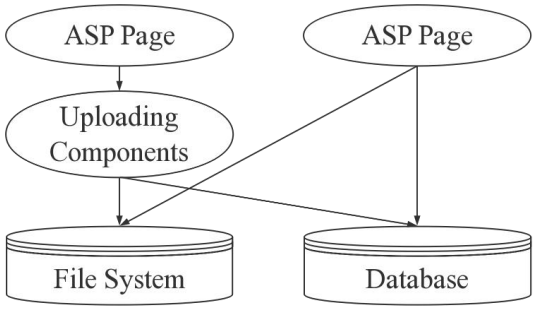

Figure 1 B/S architecture diagram

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2.2 Data Analysis

On the one hand, develop personalized and differentiated learning resources. In the big data analysis, the cognitive structure, emotional structure, ability level and personality characteristics of college English students can be clarified more quickly, so as to provide more accurate and perfect education services on this basis. In the context of big data, data analysis is carried out based on the college English education ecosystem. Firstly, rich digital learning resources are obtained and students can choose learning tasks according to their own interests. Secondly, it can improve learning efficiency, arrange learning knowledge points by using big data technology, and set personalized learning methods according to different students' learning abilities. Finally, it can solve the problems existing in traditional education and help college English teachers quickly grasp the learning needs of students in class. Combined with the analysis of the structure of intelligent education shown in Figure 2 below, it can be seen that according to the requirements of the new curriculum syllabus, it is an important part of the construction of the ecological environment of college English education to collect a large number of learning resources in the big data environment, use the big data technology to analyze students' learning behaviors, and then evaluate students according to their learning ability and final results.[8-10]

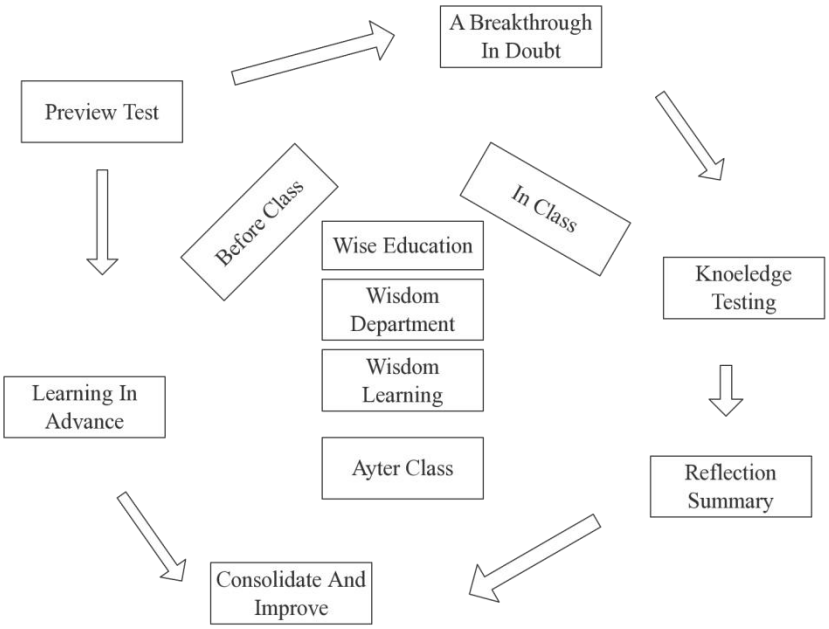

FIG. 2 Structure of Intelligent education

Based on the above analysis, it can be found that the intelligent education structure will start from three aspects: pre-class, in-class and after-class. The time education work involves pre-learning, preview detection, doubt breakthrough, knowledge detection, reflection summary, consolidation and improvement, etc., which can truly achieve the teaching objectives of intelligent education and intelligent learning.

2.3 Information Feedback

In the context of big data, to build an ecological system of college English education, it must be clearly recognized that only by optimizing and analyzing data information and providing visualized functions such as prediction, recommendation and early warning can a smart education environment meet the needs of education reform be formed. Among them, visualization technology includes spatial information flow, history flow, tag cloud and so on. By visualizing the data analysis results, the hidden correlation content can be found, and the intuitive prediction can help the staff to guide the decision. First, location monitoring. System users can observe the location information of students in different time periods anytime and anywhere, which is convenient for education

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counselors and professional teachers to quickly understand the daily learning status of students; Second, learn to monitor. The search function can help users learn about students' reading activities in real time, and gradually update the learning information inside the system. Meanwhile, artificial intelligence can be used to analyze and predict students' learning status, and help teachers adjust the teaching progress and teaching methods, so as to optimize students' comprehensive ability. Finally, students' public opinion monitoring. Based on the analysis of the architecture diagram shown in Figure 3, it can be seen that in the ecosystem platform, collecting a large number of campus network resources and social media resources, and accurately predicting students' group thoughts in the process of structured data processing, analysis and cleaning can not only discover more related data, but also provide effective basis for education management and innovative development.[11-13]

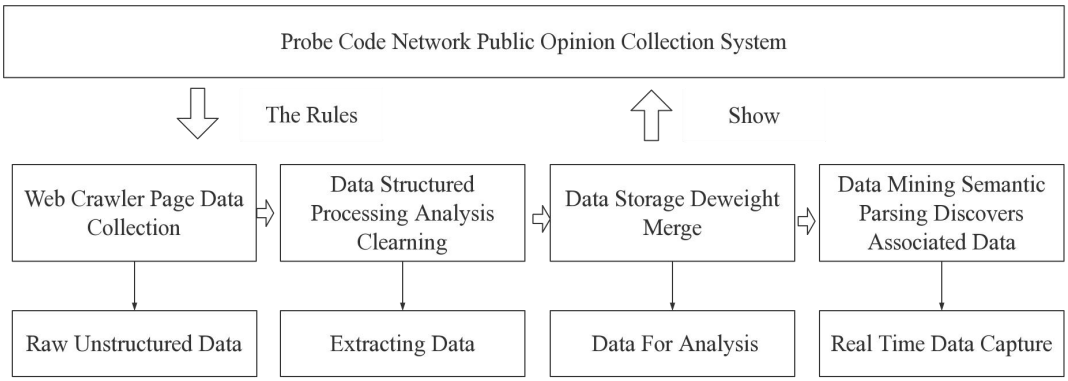

Figure 3 Architecture diagram of student public opinion monitoring

3. Result analysis

With the steady development of social economy and science and technology, the ecological theory of education has been widely paid attention to and has been applied to the construction and management of education system. Both managers and professional teachers pay attention to improving the ecological environment of education, truly realizing the sustainable development goal and making contributions to the sustainable development of human society. In the context of big data, the measures for the construction of college English education ecosystem are as follows:

First of all, we should actively create a good campus culture and show the characteristics of university education. Modern ecology pays more attention to the pursuit of harmonious coexistence between man and nature, and relevant theories and technologies pay more attention to the solution of ecological environment, resource application, social development and other issues. The purpose of modern ecology is to make full use of ecological resources by improving the ecological environment. From the perspective of campus ecology, college education should pay more attention to good interpersonal relations, introduce more educational production materials related to college English, and actively establish the educational concepts of "healthy life" and "lifelong learning". Nowadays, the ecological culture construction of college English education will create a good spiritual culture from the inside out, so that students can receive better English education and teachers can realize the difference and individuation of learning in an equal and harmonious teaching environment.

Secondly, create a mental dynamic system to create a good spiritual harbor. Combined with the analysis of the education ecosystem shown in FIG. 4 below, it can be seen that under the big data environment, the influences of the macro system, the appearance system, the mesoscopic system and the micro system should be fully considered.[14.15]

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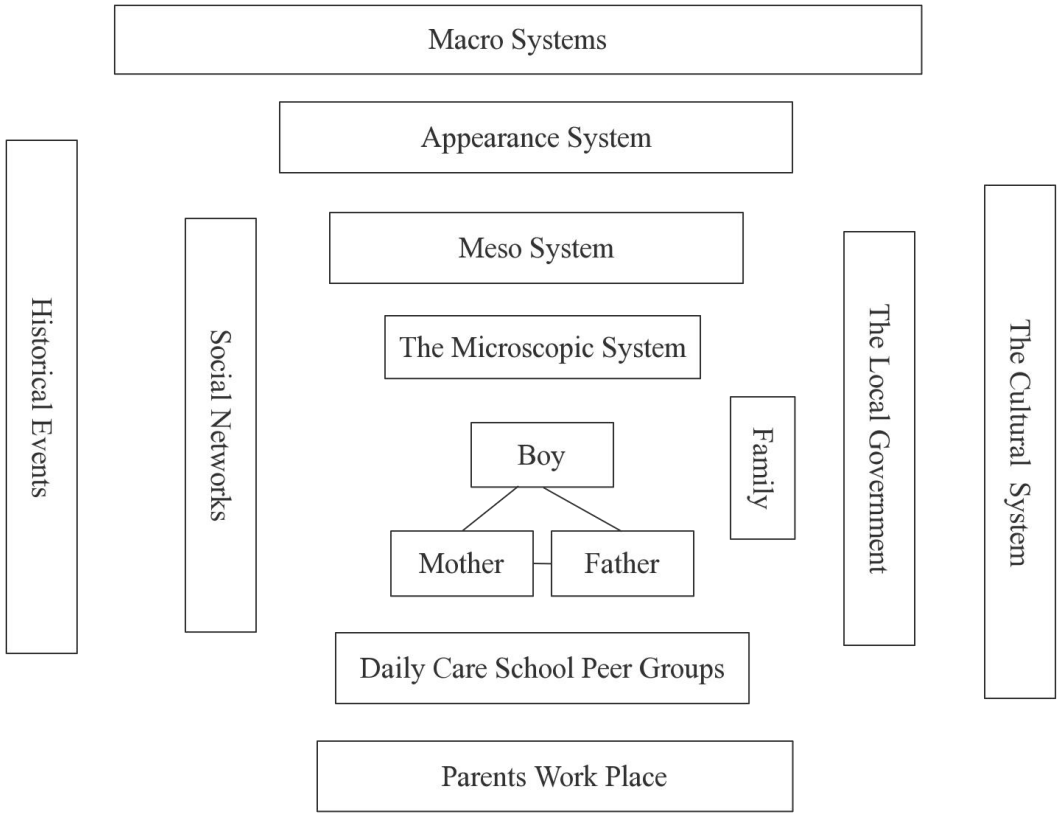

Figure 4. Structure of education ecosystem

According to the enlightenment of the theory of multiple intelligences, we can create a high-quality education environment from different angles. For example, in the macro system, historical events and cultural systems should be combined, and multimedia technology and network platform should be used to present the knowledge system related to English education to students. In the appearance system, colleges and universities should establish good cooperative relations with local governments and social networks to encourage and support students to apply their English knowledge to practical activities. In the meso system, colleges and universities should combine the daily education work and the peer group to set up diversified practical education activities, so that students can use the textbook English knowledge to solve specific problems; In the micro system, parents should be guided to participate in English education communication.

Finally, it provides dynamic support for ecological education system based on multivariate evaluation. In the whole process of teaching work, education evaluation should be fully implemented, the concept of non-standardization should be adhered to, and clear evaluation contents and methods should be formulated based on students' individuality, so as to create a good environment for talent cultivation and help more outstanding talents stand out in the social competition. The specific contents are shown in Table 1 below, in which the usual scores account for 40% and the final written examination accounts for 60%.

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Table 1. Multiple evaluation contents of college English

Evaluation items		Content and form of evaluation	Key points of evaluation	Evaluation method
Average score (40%)	Usual performance (10%)	Class performance, class attendance	Learning strategies, emotional attitudes, etc	Teacher evaluation, mutual evaluation, self-evaluation
	Usual test (5%)	Network testing, unit testing, where testing	Language knowledge and skills	Quantitative evaluation
	Homework (5%)	Written assignments, study notes, Internet assignments	Learning process, written communication	Teacher evaluation, mutual evaluation, self-evaluation
	Self-directed learning (20%)	Online autonomous learning, participation in the second class	Learning process, cultural awareness, collaborative spirit, self-development awareness	Teacher evaluation, mutual evaluation, self-evaluation
Final written test (60%)		Listening, reading, cloze, translation, composition	Comprehensive language application ability	Quantitative evaluation

Conclusion

To sum up, under the environment of big data, to build an ecosystem of college English education, on the one hand, we should give full play to the basic functions of college English education, improve the quality of classroom teaching, on the other hand, improve the environment of college English education, and ensure the sustainable development of colleges and universities. Especially in the big data, cloud structure, artificial intelligence and other technical theories of the development, the field of education should increase the education ecological system research, focus on combining the needs of practical education, optimize the internal function and technical theory, only in this way can better meet the learning needs of students.

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